

Generic Claim. Secondly, contrary to the Examiner's statement, Applicant submits that Claim 2 is generic to the following claims, each of which include all the limitations of Claim 2:

Depending Claims 3-6 and elected Claims 18-22;

Claims 7-12, 23, 24, 26-31, 33-42, 44, 47, 55, 62, and 83-110; and

New Claims 111-147 (depending from Claim 2) and 148-149.

Accordingly, Applicant submits that the above-listed claims are readable on Species II: Claim 2.

Applicant requests reconsideration and withdrawal of the requirement of the election of species. The generic claim (Claim 2) includes sufficiently few species such that a search and examination of all the species at one time would not impose a serious burden on the Examiner.

Errors in species designations. Applicant respectfully disagrees with the identification of the following species and submits that the Examiner's characterization of the claims and identification of species is in error.

- Species II (Claims 2-6 and 18-22):

The errors in Species II is discussed above.

- Species III (Claims 7-12):

Claims 7-8 and 11-12 do not recite a limitation of "a plasma."

- Species IV (Claims 13-17):

Claim 13 recites the step of "depositing a high K dielectric layer." The Examiner erroneously characterizes the dielectric layer as consisting of "noble metal" and "oxide metal."

Claims 14-15 delineate the high K dielectric material as a tantalum pentoxide, titanium dioxide, barium strontium titanate, strontium titanate, barium titanate, lead zirconium titanate, strontium bismuth tantalate, hafnium oxide, zirconium oxide, and aluminum oxide— which can be characterized as *insulating inorganic metal oxides* having a high dielectric constant.

- Species V (Claims 23-26):

Claim 25 does not recite either "forming a dielectric layer at less than 800°C" or "having a thickness of 40 angstroms."

Claim 26 does not recite the limitation of "having a thickness of 40 angstroms."

- Species VI (Claims 27-31):
 - Claims 27-29 and 31 do not recite "forming a dielectric layer at 900°C"
 - Claims 27-28 and 30-31 do not recite forming a dielectric layer "with plasma."
- Species VII (Claims 32-34, 41, 42, 46, 47):
 - Claim 33 does not recite the limitation of "an activated gas."
 - Claims 32, 41-42, and 46-47 do not recite the limitation of "HSG" polysilicon.
 - Claims 32 and 46-47 do not recite the limitation of a "thickness of 40 angstroms."
- Species VIII (Claims 35-40):
 - Claims 35-40 recite annealing the polysilicon substrate in the presence of a nitric oxide at "about 700 to about 750°C."
 - Claims 35-39 do not recite the limitation of "with plasma." Claim 40 recites that the oxidizing gas is "selected from the group consisting of oxygen, *plasma oxygen*, ozone, nitrous oxide, and mixtures thereof."
 - As for the limitation of "noble metal" and "oxide metal" (referring to the dielectric layer), Claim 35 recites "forming a *dielectric layer*." Claims 36-40 recites the dielectric material as comprising "*a high K dielectric*," with Claim 37 reciting exemplary high K dielectric materials. The Examiner erroneously characterizes the dielectric layer as consisting of "noble metal" and "oxide metal."
- Species IX (Claims 43-45):
 - Claims 43-44 do not recite (annealing the dielectric layer in) "an oxidizing ambient."
 - Claims 43 and 45 do not recite (annealing the lower electrode) "at 750°C."¹
- Species X (Claims 48-52):
 - There is no limitation in any of Claims 48-52 that eliminates the use of an "activated gas."
- Species XI (Claims 53-62):
 - Claims 54-55 and 57-62 do not recite the limitation of an "activated gas."
 - Claims 53-54, 56-62 do not recite the limitation of "less than 800°C."²
 - Regarding the limitation of "noble metal" and "oxide metal" (referring to the dielectric layer), Claim 53 recites "forming a *dielectric layer*." Claims 54-56, 58 recite the dielectric material as comprising "*a high K dielectric*," with

¹ It is further pointed out that Claim 44 recites annealing the lower electrode at "about 700 to about 750°C."

² Claim 62 recites the limitation of annealing at "about 700 to about 750°C."

Claims 59-60 reciting exemplary high K dielectric materials. Claims 57 (and depending 61-62) recite forming an insulative layer, which comprises an "insulating inorganic metal oxide material." The Examiner erroneously characterizes the dielectric layer as consisting of "noble metal" and "oxide metal."

- Species XII (Claims 78-82):
Claims 78-80 do not recite "plasma annealing."
- Species XIII (Claims 83-88):
Claim 87 does not recite "thermal annealing."
Claims 83-86 do not recite "plasma annealing."
- Species XIV (Claims 89-95):
There is no limitation in any of Claims 89-95 that eliminates "plasma annealing."
- Species XIV (Claims 96-110):
None of the claims recite "plural opening."
Claims 105-110 recite "*one or more* openings."

In summary,

1. The Examiner has erroneously *read in limitations* from the depending claims into the independent claims — i.e., Claims 7, 27, 35, 43.
2. The Examiner has erroneously *read in limitations* from other (non-depending) claims into the independent claims — i.e., Claims 2, 25, 26, 32, 33, 41, 46, 53, 54, 56, 57, 78-80, 83-86.
3. The Examiner has also erroneously *mischaracterized* the claims — i.e., Claims 96-110 (Species XIV).
4. The Examiner has erroneously read *negative limitations* into the claims — i.e., Claims 48-52 (Species X) and Claims 89-95 (Species XIV).

Correction to the identification of species is requested.

Applicant further requests reconsideration and withdrawal of the requirement of the election of species. As stated above, the generic claim (Claim 2) includes sufficiently few species such that a search and examination of all the species at one time would not impose a serious burden on the Examiner.

Applicant notes that the election of species is for the purpose of prosecution on the merits, and that Applicant will be entitled to consideration of claims to additional species upon